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Progress in Explosives Synthesis by VNS Amination

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Abstract: The basic principle of VNS (Vicarious Nucleophilic Substitution of Hydrogen) is introduced. Progress in synthesis of TATB, DADNB, DATB, DATNT, CL-14, LLM-116, LLM-119 by VNS amination are reviewed. The prospect of VNS amination in synthesizing explosives is discussed. A number of VNS amination routes for preparing TATB are discussed, analyzed and compared in detail. Conversion of picramide to TATB using hydroxylamine as the VNS aminating reagent is probably the cheapest way. LLNL has achieved an excellent results with high yield, high purity, higher reactant concentrations, petter product appearance without halide contamination in TATB using ATA as the VNS aminating reagent.

Key words: organic chemistry; vicarious nucleophilic substitution of hydrogen(VNS); explosive synthesis; amination; TATB

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